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Worldwide Report

TELECOMMUNICATIONS POLICY,
RESEARCH AND DEVELOPMENT

No. 111



FOREIGN BROADCAST INFORMATION SERVICE

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WORLDWIDE AFFAIRS

'VOICE OF FREE AFRICA' REPORTEDLY TO END BROADCASTS

Broadcasted From Mozambique

LD101624 Maputo Domestic Service in Portuguese 0500 GMT 10 Feb 80 LD/EA

[Text] The office of the British governor in Rhodesia, Lord Soames, has informed the Mozambique Government delegation in Salisbury that, as of yesterday, the Voice of Free Africa radio, commonly known in Mozambique as the "Voice of Quizumba," would cease its broadcasts from Rhodesian territory. The Mozambique-British negotiations to end that radio program began during the Lancaster House talks in London, and the Mozambique Government continued to put heavy pressure on the British authorities immediately after the cease-fire agreement. Following the resumption of talks in Salisbury, the British administration reduced the Voice of Quizumba radio programs to three broadcasts a week. Meanwhile, it was learned that the British would be able to force the Rhodesians to put an end to that radio's programs. Some observers, however, were of the opinion that Lord Soames would like to leave the affair to be decided by a future Rhodesian Government.

When Radio Mozambique ended the Voice of Zimbabwe broadcasts, the Rhodesians began saying that the program had simply been replaced by another one called the external service of Radio Mozambique [title spoken in English]. But that argument is unacceptable, as one can also argue in the same manner against the existence of the external services of all radio stations, including the BBC.

Talks were held this week, and yesterday evening the Mozambique Government delegation in Salisbury was informed that the Voice of Quizumba had stopped its broadcasts. For some time it was thought that the radio was broadcasting from somewhere outside Salisbury. After investigations it was concluded that the program was being broadcast from the Radio Rhodesia station in Salisbury and beamed to Mozambique through a rebroadcasting system in the border area with our country.

Criticism of Maputo Radio

LD112147 (Clandestine) Voice of Africa in Portuguese to Mozambique 1630 GMT
11 Feb 80 LD/EA

[Excerpts] In its news bulletins of 10 February 1980 Radio Chinconhoca ["Rumormonger," VOFA's nickname for Maputo Radio] broadcast the following news item:

On 10 February Maputo Radio reported that the Voice of Free Africa had been closed down. It also said that our radio station had only been operating 3 times a week. The Voice of Free Africa has been broadcasting every day and continues to broadcast, as our listeners can testify.

This radio station, known to the Mozambican people as the Voice of Free Africa and which Machelist communists call the Voice of Quizumba ["Hyena"] was given special attention at the London conference on the Rhodesian problem, according to the news item put out by Maputo Radio. And according to the latter, the communist government of Samora Machel has demanded of the British governor in Rhodesia the suspension of any service or broadcast supposedly beamed by the Voice of Free Africa from Rhodesia, and in turn Maputo Radio would suspend the Voice of Zimbabwe.

On 22 December 1979, the Machelist chieftain reported that the Voice of Free Africa had been closed down, and now, on 10 February, the Machelists repeat the same lie, the same rumor, the same false propaganda.

Let's face it: Had VOFA really been the voice of lies, obscurantism, contradiction and false propaganda, as Machel and his propaganda-filled news media have always described it, it would not have drawn to itself the attention it is now getting. It would not have aroused the anxiety which is prompting the Machelist communist government to hold negotiations. All the pressure brought to bear and moves made by the Machelist government are now clearly proving that the entire Mozambican people listen to the Voice of Free Africa, which tells the truth and the facts and whose criticism totally throws out of gear and unmasks the false propaganda spread by Machelist communism.

We are immensely grateful for this news item written and broadcast by some Machelist imbeciles concerning the Voice of Free Africa. We are immensely grateful as it performs no other service but to demonstrate the influence and popularity our programmes enjoy. Maputo Radio itself has just told us about this through its news bulletins, which are aimed at discouraging the Mozambican masses who listen to us every day.

The voice of Zimbabwe has in fact ceased to be broadcast by Radio Maputo. It has been replaced by the external service of Radio Maputo. What has been changed are the announcers, but the content of its programs continues to be absolutely the same as those of the former Voice of Zimbabwe. The party and marxist propaganda of the former programs continues.

Maputo Radio claims that the Voice of Free Africa is a violation of the London agreement, but the same radio does not say that the infiltration of Machelist soldiers into Rhodesia is a violation of the London agreement. The London agreement is on the Rhodesian problem and does not concern itself with the Mozambican people's struggle against the Marxist dictatorship of the Machelist government. The London agreement is an agreement among Rhodesian people to exercise their right to elect the government of their choice, something which did not happen in Mozambique.

This is the Voice of Free Africa which was reported closed by Samora Machel on 22 December 1979. Samora Machel and Maputo Radio never tell the truth. The fact remains that our listeners are still listening to us. We want to thank Maputo Radio for having drawn the attention of the Mozambican people to the supposed closure of our radio station, something which has led the entire Mozambican people to stay tuned to us more than ever before. Victory is ours. The lie has been unmasked.

CSO: 5500

BROADCASTING UNION CONFERENCE OPENS IN TOKYO

OW280339 Tokyo KYODO in English 0329 GMT 28 Feb 80 OW

[Text] Tokyo Feb 28 KYODO--The eight-day third conference of broadcasting unions was opened at the NHK Broadcasting Center in Tokyo Thursday morning, with some 170 delegates from nine regional broadcasting organizations attending.

Prime Minister Masayoshi Ohira and Posts and Telecommunications Minister Masao Onishi attended the opening ceremony at the NHK (Japan Broadcasting Corporation) Center.

In his address, Ohira stressed the importance of broadcasting in promoting mutual understanding and trust between nations in the world.

He wishes the delegates would fully discuss "the ways and means to enable broadcasting to promote correct understanding among nations, thereby providing a fertile land where the manifold cultures will flourish on the spiritual foundation of harmony and solidarity."

The Tokyo conference is being chaired by Abdullah Mohamad of Malaysia, senior vice president of the Asia-Pacific Broadcasting Union, on behalf of ABU president, Dr. Sumadi of Indonesia.

Major topics in the conference include the rising broadcasting dues of Olympic Games and copyrights in the age of satellite broadcasting, according to NHK.

The discussion also covers satellite charges for broadcasting, common language and systems of broadcasting devices.

This is the first such conference held in Japan and is joined by all the nine regional broadcasting unions, including one of the Soviet and East European Bloc.

The conference is expected to adopt a resolution calling for joint negotiations between the broadcasting unions and the Los Angeles Olympic Organizing Committee over airing rights of the 1984 summer games.

WORLDWIDE AFFAIRS

BRIEFS

KAMPUCHEA-GDR AID--GDR Ambassador to Kampuchea Rolf Dach on 24 January presented to SPK Telecommunications equipment as a gift from the GDR. Director General of SPK Chea Saphon received the equipment at the handing-over ceremony, which was attended by all SPK staff. [(Clandestine) SPK in French 1441 GMT 24 Jan 80 BK]

CSO: 5500

BRIEFS

JAPAN-BHUTAN PHONE LINE Tokyo, 22 Feb--International telephone service will be started next Monday between Japan and Bhutan via India, a Kokusai Denshin Denwa Kaisha (KDD) spokesman said Friday. The charge for a call will be yen 3,045 for the first 3 minutes with an additional fee of yen 1,015 for each minute thereafter. Thus far, communication between Japan and the country in the Himalayan mountains has been confined to telegram service. [Text] [OW221255 Tokyo KYODO in English 0959 GMT 22 Feb 80 OW]

CSO: 4120

AUSTRALIA

BRIEFS

RADIO INTERFERENCE--A senior Radio Australia executive has described the service as a necessary part of the country's efforts to make itself understood in a world where misrepresentation is a normal practice by governments opposed to Australia's influence in Asia. The assistant director of news and public affairs, Mr (Hodge), said Radio Australia, the overseas service of the Australian Broadcasting Commission, was one of the country's major public relations exercises. Mr (Hodge) was presenting a submission in Darwin to the parliamentary public works committee investigating the rehabilitation of Radio Australia's Darwin transmitters which were disabled by Cyclone Tracy in 1974. He said Radio Australia broadcasts had done much to depict Australia as a nation with significant Asian interests compatible with the interests of Asian countries, but the service was increasingly being hampered by interference from other broadcasters using higher powered transmitters. In addition the Radio Australia signal was too weak to adequately service the Pacific region and the massive and growing audience in China. [Text] [OW131807 Melbourne Overseas Service in English 1230 GMT 13 Feb 80 OW]

CSO: 5500

PLAN TO ADOPT SATELLITE TECHNOLOGY FOR ARMY

Calcutta THE STATESMAN in English 15 Feb 80 p 3

[Text] The Corps of Signals of the Indian Army, which celebrates its 69th foundation anniversary on Friday is planning to adopt the technology of geo-stationary satellites for military communication. Research is continuing, but it may take some time before India can develop the technology for this highly sophisticated method of communication.

Military experts said in Calcutta on Thursday that some of the Western armies had adopted the technique. It had increased the mobility of forces. Large technical units on the ground could be eliminated, and small ground units could move with the formations.

The experts said India had recently borrowed a Franco-German and an American geo-stationary satellite for civilian use. They had been used for live telecast of a few cricket matches and during the Andhra floods in 1977. The Army, however, could not use borrowed communication equipment, as this might affect security.

The experts feel that the communication prowess of the Indian Army is at par with that of neighbouring countries, if not better, because of the development of electronic technology. Most of the equipment for the Corps of Signals is indigenously built. The systems design of this equipment in India is comparable to that of developed countries, though regarding production of components India is yet to catch up with the Western nations.

Major-General J. S. Nanda, Chief Signal Officer of Headquarters, Eastern Command posed special problems for signals regiments. High mountains, jungles and the proximity of foreign countries made communication difficult.

The Corps of Signals uses lines, radio and despatch riders to maintain communications. There are small transmitters that can be carried by a man on his back and big sets for receipts and transmission of overseas messages. There are medium and high frequency radio sets with a range of 120 km and very high frequency radio relay sets that can handle 12 speech channels and 12 teleprinter channels at the same time.

COMPUTERIZED DATA TRANSMISSION: P & T SHOW

Madras THE HINDU in English 4 Feb 80 p 6

[Text] New Delhi, Feb. 1. The infrastructural capabilities developed by the Posts and Telegraphs Department for the transmission and retrieval of computerised data will be demonstrated at an international symposium on data communication and computer networks to be held in Bombay on February 4.

Experts in data communication and computer networks from Europe, the U. S. and Canada are participating in the symposium which will be inaugurated by Mr. S. K. Ghose, Secretary, Union Ministry of Communications, while Mr. P. K. Verghese, Member of the P and T Board, will deliver the keynote address.

Mr. M. N. Mathur, Deputy Director-General of Posts and Telegraphs, will present a paper on planning for data communication constraints and resources in India.

Data Interpretation

Among the telecommunication capabilities developed by the P and T Department is the use of P and T cables to transmit data to be fed into a computer set up at a distant location and retransmission of the interpretation by the computer.

For instance, the P and T Department can help research workers in Delhi to feed their data into the computer at the Indian Institute of Technology, Kanpur, and retrieve the data. The public sector consultancy agency, the Metallurgical and Engineering Consultants in Ranchi, is operating its computer in Calcutta by feeding and retrieving information through P and T cables. Previously it had to send its officers to Calcutta for this purpose.

Similarly Air India and Indian Airlines will be using P and T cables for their computerised reservation system which is in its final stages.

The purpose of the Bombay symposium is to make the existence of these capabilities with the P and T known abroad and it is expected that telecommunication agencies abroad will take steps to link India with their own computerised network.

A number of P and T lines have been provided interlinking Bombay, Bangalore, Ahmedabad, Hyderabad and Pune for data transmission. In Bombay city itself there are several local links to be utilised for data transmission.

These long-distance and local links are at present under test and being conditioned wherever necessary to acquire data transmission capability at high speeds. Capability of the links for carrying higher speed signals is also being assessed.

This is the first symposium incorporating live demonstrations on a big scale to be organised by the P and T Department in the field of data communication and computer networks.

CSO: 5500

COMPUTER LINK WITH BRITAIN

Bombay THE TIMES OF INDIA in English 8 Feb 80 p 4

[Text] Bombay, February 6: For a brief while this morning a group of city newsmen watched a small section of President Hotel being linked to London through the Prestel Viewdate computer.

The event took place in the exhibition specially organised as a part of the "Network-80" symposium, attended by several communication experts. Casual visitors to the show seemed confused when they found various types of information from Fleet Street in London appearing on the special TV screen.

Seconds after a button was pressed, the data sought was flashed on the TV screen. Bombay Telephones had connected the unit to the Overseas Communication Service, which in turn relayed and collected the data through the satellite.

The unique apparatus can give any type from information ranging from holiday resorts to details in the stock exchange. The data have been provided by more than 100 organisations, including the "Financial Times" and "The New York Times". The "Prestel" can be used for making reservations for travel tickets, hotels, airlines and buy consumer items directly.

The first signals from the Prestel Viewdata computer in London were received by a group of engineers of Bombay Telephones, Overseas Communication service, and a branch of the UK post office research department functioning at the President Hotel on February 2.

The head of the Viewdata development at the post office research centre in the UK, Dn., G. Childs, told reporters today that the facility was at present available to 32 per cent of telephone users. A larger number is expected to be covered by 1986.

CSO: 5500

INDIA

HCL MULTI-TERMINAL MINI-COMPUTERS

Bombay THE TIMES OF INDIA in English 8 Feb 80 p 4

[Text] Bombay, February 7: Hindustan Computers Ltd., a joint sector venture with manufacturing facilities in U. P., has planned to introduce a new range of multi-terminal mini-computers whereby different users can process data simultaneously.

Known as HCL system 4, the computer is expected to provide a throughput far exceeding the conventional single-terminal computer.

HCL has also entered into an agreement with the economic development board of the Singapore government to manufacture a wide range of computers in that country. The products will be distributed in markets spread over South-East Asia and West Asia.

CSO: 5500

BRIEFS

TELECOMMUNICATIONS SATELLITE--A new era in the telecommunications system will be heralded in the country with the launching of the Indian satellite Insat early next year. The master control facility center for the Insat spacecraft is being established in Hassan District of Karnataka. The government has already concluded a contract with a U.S. firm for necessary equipment. Meanwhile, the state-owned Indian Telephone Industries has embarked upon a project to develop a complete range of ground equipment for the satellite earth station to be set up under the Insat program. [Text] [BK030342 Delhi Domestic Service in English 0240 GMT 3 Mar 80 BK]

SATELLITE IN 1981--A new era in the telecommunications system will be heralded in the country with the launching of the Indian satellite Insat early next year. The master control facility center for the Insat spacecraft is being established in Hassan District of Karnataka. The government has already concluded a contract with a U.S. firm for necessary equipment. Meanwhile, the state-owned Indian Telephone Industries has embarked upon a project to develop a complete range of ground equipment for the satellite earth station to be set up under the Insat program. [Text] [BK030342 Delhi Domestic Service in English 0240 GMT 3 Mar 80 BK]

THIRD SATELLITE READY--India is likely to launch its third satellite from Kota, in Rajasthan, next year according to Dr Shiv Prasad Costra, an eminent space scientist, attached to the Indian Space Research Organisation. Dr Costa, who arrived here to deliver a lecture on space science at the Ravi Shankar University, said on Monday that the third satellite with fully indigenous equipment would be utilised for the television network telecommunication and meteorology. He said two rockets were likely to be launched within six months for experiments in tele-communication and microwave. [Text] [New Delhi PATRIOT in English 14 Feb 80 p 5]

CSO: 5500

BRIEFS

PRK RADIO--"The Information, Press and Culture Department of Prey Veng Province is steadily developing. Since 1 October 1979, the provincial department has operated a radio station which daily broadcasts various local news and relays programs of the Voice of the Kampuchean People. In the area of news reporting, this station is encountering some difficulties due to a shortage of personnel to gather news from various communes and villages. In preparing articles and transmitting them, the station is employing new and still inexperienced personnel who are, nevertheless, determined to write and read their materials well. [BK291241 Phnom Penh Domestic Service in Cambodian 1200 GMT 26 Feb 80 BK]

CSO: 5500

MONGOLIA

BRIEFS

NEW TELEPHONE LINE--Ulaanbaatar, 28 Jan--A brigade of the construction and installation administration of the MPR Ministry of Communications has commissioned a new telephone line permitting the people in another four somons of Dundgobi Aymag to communicate with the Aymag center and national capital. This year it is planned to extend telephone and telegraph lines in the country by nearly 700 kilometers. [Text] [Ulaanbaatar MONTSAME in Russian 1823 GMT 28 Jan 80 OW]

CSO: 5500

NEW TV PROGRAM FOR MAORIS, POLYNESIANS PLANNED

Christchurch THE PRESS in English 22 Jan 80 p 4

[Text]

A new television programme for Maoris and Polynesians will aid race relations, says one of its producers.

Mr Selwyn Muru, a sculptor and experienced broadcaster, is part of a unit set up to compile the half-hourly programmes, which are scheduled to be screened once a week from March 30.

"For the first time we will get away from tokenism," said Mr Muru in Christchurch last week. He was in the South Island to collect ideas from Maori groups for the new series.

He said this was one way the producers hoped to "plumb the depths of the culture."

Television programmes for Maoris and Polynesians had so far generally only scratched the surface.

Mr Muru accused Radio New Zealand of creating a "ghetto" type of Maori and Polynesian unit by basing it in South Auckland away from the mainstream of broadcasting.

"Once our unit is fully established I would like to get back to Avalon."

He hoped the new series would instil a greater awareness of other cultures throughout New Zealand television and radio.

The new programme had yet to be named. Mr Muru said he would probably be the presenter and Mr Ray Waru, who had directed "Country Calendar," would be its producer.

"It will screen tentatively late afternoon on Sundays. We are hoping to earn a better time slot by making the programme earn a following."

Mr Muru said the programme would have items of interest to all New Zealanders.

"The bulk of it will be in English but if people decide to break into Maori we will leave it. It will add to the flavour of the programme."

Mr Muru said that among the suggested ideas for the series were three-minute items, each dealing with the

historical significance and Maori mythology of different places round New Zealand.

"People could be sensitised so that streams, lakes, and other aspects of the landscape can speak to them."

Other possibilities were profiles of old identities, traditional songs presented by different groups on location, and Maori and Polynesians talking about issues of the day.

On an issue such as obesity, a Maori doctor could "put the message across" where his pakahi counterpart might appear patronising.

Mr Muru said he had been in broadcasting for 13 years.

He had produced the radio programmes, "Te Puna Wai Korero" and "Te Rao Ote Ripi-wharaurua" and had read news in Maori.

He now did occasional work for the radio unit and had been asked to work on the television programme.

He felt the needs and interests of South Island Maoris had been neglected.

FIRST PAKISTANI-MADE TRANSMITTER INAUGURATED

Quetta BALUCHISTAN TIMES in English 9 Feb 80 pp 1, 4

[Text] Islamabad, Feb 8: The first high power transmitter designed and fabricated in Pakistan will be unveiled by the Minister for Information and Broadcasting, Maj Gen S. Shahid Hamid (Retd) at Rewat on February 9.

The transmitter--a medium frequency transmitter of 100 kilowatt--has been designed developed and manufactured by Pakistan Broadcasting Corporation without any external collaboration.

It would be installed at Khairpur and would cater to the people living in a radius of 100 miles.

The transmitter, along with anti-fading cage type antenna system feeder system allied equipment and spares has been completed in one-and-half years at a total cost of Rs 7.27 million. This has resulted in saving of Rs 5.13 million which includes a foreign exchange component of Rs 4.24 million.

The testing of the transmitter on full power which lasted for about six months have showed that its performance compare well with any transmitter of foreign make.

The credit for achieveing this breakthrough goes to the Equipment Production Unit of PBC, which was established four years ago to attain some level of self-sufficiency in the field of designing and manufacture of broadcast equipment.

The unit has also designed and successfully fabricated a directional antenna system for 500 kilowatt power level at a cost of Rs 1.81 million. This indigenous antenna system has saved Rs 5.79 million, including a foreign exchange component of Rs 3.14 million, to the national exchequer.

Besides, a variety of studio equipment at a cost of Rs 2.10 million with a Foreign Exchange component of Rs 0.10 million has been manufactured. This equipment, if imported, would have cost Rs 4.7 million with a foreign exchange component of Rs 1.9 million.

As the equipment being manufactured by PBC was cheaper and also suited the local conditions, import of transmitters, antenna system and audio processing equipments has been discontinued. PBC was now only importing test equipment, microphones, tape recorders and a limited number of components.--APP

CSO: 5500

PRODUCTION OF CONTAINER HOUSED EXCHANGES INITIATED

Budapest BHG, ORION, TERTA MUSZAKI KOZLEMENYEK in Hungarian No 6, 1979 pp265-272

[Article by Gyula Elek of BHG (Beloianisz Telecommunication Factory): "Construction Design of the First Domestically Developed Mobile Exchange"]

[Text] The BHG began to fulfill the demand shown for container housed telephone exchanges by developing a 1,000 line mobile exchange, type ARF 102.

The present article provides a review of the more important technical characteristics and application possibilities of the new type of exchange. It deals in detail with construction development, climate control, transportation and installation issues.

Background

The National Planning Committee passed a resolution in 1977 about the telecommunication improvements to be completed by 1980, over and above the plan.

Easing the problems which appear in the domestic telephone supply is a basic political and national economic interest. In accordance with this the BHG's staff considers the topic as an emphasized program and is making increased efforts in the interest of implementing the national goals. The first significant stage of this development work was creation of the type MOBIL, 1,000 telephone exchange.

All telephone exchanges of optional construction and function which are installed not in a fixed building but in a portable container which ensures all the conditions of operation, belong within the concept of mobile exchange.

The use of mobile-type exchanges is expanding all over the world and it appears that in the future this method of rapid and economical expansion of telephone service will receive greater and greater significance.

What says the most today in favor of such exchanges?

First of all the fact that installing them does not require particular investments in the construction industry. Possible lack of capacity in the construction industry does not slow down the rate of expanding the network.

The line network can be expanded flexibly, in case of need the relocation--in contrast with exchanges located in buildings--can be handled with simple tools. The mobile exchanges can be installed at the most suitable place in the existing network, thus adding to the network is economical.

It is a basic advantage from the viewpoint of the manufacturer that on-site installation which always involves large overhead costs and often causes problems because of manpower, will decrease to a minimum.

At the factory's location the exchanges can be assembled at a higher technological level. External installation of the cables, equipment start-up and functional testing as well as final acceptance can be fitted into the manufacturing process.

Considering that the mobile exchange will be located in a hermetically sealed and thermally insulated so-called surface container, the internal climate conditions needed for the long life and troublefree operation of the equipment can be insured by the installation of an airconditioning unit. Thus the much more expensive and special weather-resistant components can be dispensed with, even in the case of extreme outside weather.

Brief Functional Review

According to the needs of the Hungarian Postal Service, we have developed 3 alternative types of the type ARF 102, Mobile 1,000 exchanges without GV (group selector). These are as follows:

--Nagyvaros [big city] type,

--Videk [provinces] No 1 type,

--Videk No 2 type.

Figure 1. shows the functional block sketch of the Nagyvaros type.

Initiated traffic [i.e., a call] starts out from the subscriber, and passes through the SLA and SLB substeps into the SR circuit. From here it is forwarded with the aid of the mobile receiving section developed in the local headquarters, into the group-selector, the so-called GV step, also located there. In the GV step the connection can be directed either towards the desired SL step, or through a line connection towards another exchange.

The completed call arrives from the GV step and reaches the desired subscriber through the SLD, SLC, SLB and SLA substeps. The SL-step capacity of the present types $m = 8B$, which indicates that they were planned for exchanges where there is much incoming traffic.

In the mobile exchanges operating together with the local headquarters, each call is built up automatically. The circuits of the headquarter's receiving section needed to connect 1 mobile exchange into the network--which also contains the Rotary-type exchanges--can be seen also on Figure 1. The numbers indicate the number of individual circuits needed. In a pure AR network the mobile exchange can be operated without the RS, REG, SS, KM and KS circuits.

Generally several mobile exchanges can be connected to one given receiving exchange. The SL and GV steps of the receiving exchange must be expanded only when there are not enough CVB/GVC outlets and SLD accesses for the FUR-M and FIR-M line connectors of the receiving section.

All types are suitable for receiving PBX lines. By building in suitable cooperating circuits (FIR, FUR) the mobile exchange can also be installed into networks with systems differing from the above.

A maximum of 935 subscribers can be connected into the Nagyvaros type. (Subtracting 65, the number of FUR and PRB circuits from the nominal 1,000 lines.) The number of twin [two-party] subscribers is 460. Subscribers have a 6-digit calling number. Initiated traffic 0.05 Erlangs per subscriber. The subscribers enjoy identical services with subscribers of AR-type exchanges built into fixed buildings.

The Videk 1. type contains 2 Mobil 1,000 exchanges which can be installed at the same time or in steps. Its capacity is 2x900 subscribers, of which 2x360 are two-party lines. The exchange is capable of handling 2x45 Erlangs of traffic. According to the plans this type can provide telephone service for a city in such a way that it automatically connects the local calls, and the long distance calls are relayed from a manned station located near the container in some postal building.

The Videk 2. type has the same capacity and operation has half of the Videk 1, but this exchange variation cannot be further expanded.

Electrical power is supplied to the exchanges in a standardized way by 3 converter-equipped feed units (VSK, VSE, VST--48V/90A). The standby battery cluster manufactured by Tudor is suitable for 5 hours of emergency operation. The exchange's voltage requirement is: 3x380/220V--50 Hz. In case of a longer power failure external emergency power supply can be connected through the high voltage junction box installed on the understructure.

On Figure 2. we can see the standardized layout for the various types. Depending on use, there is a combination frame or vacant position in line 1 position 1, and either a ULR-K or a FIKR frame is installed in line 3 position 3.

Technical Requirements

Considering the fact that the ARF 102 is one of our traditional products and we have the technology which was developed to build it into a fixed building, we did not want to deviate from this--considering also the short deadlines. Thus we have developed a large special container while conforming to the construction of the traditional exchange, which insures that the complete 1,000-line structure can be transported and installed in operating condition.

Using primarily the domestic installation locations as basis, we decided against transportability by railroad and planned the construction for transportation by public road vehicles with special suspensions. In accordance with this, keeping the usual phases of installing an exchange we made the following construction requirements for the container housing:

1. It should be made of a separate understructure and a superstructure which can be installed on it later. It should be possible to fasten the rows of support stands and frames to the understructure by means of bolts and nuts. Since in this phase of assembly there are no sides yet, it should be possible to provide temporary support for the lengthwise and sideways stabilization of the frames and cable channels.
2. The understructure must meet the same requirements as the floor structures of fixed buildings with respect to floor loading, floor rigidity and evenness. The understructure must retain this characteristic even during transportation (for example in a state of being lifted up by one of its corners).
3. Sides and roof must have appropriate firmness and thermal insulation. After assembly it should be possible to transfer the weight of the temporary stabilizations to the sidewalls. It should provide secure protection to the exchange against mechanical damage and effects of the weather.
4. It should be possible to assemble the superstructure from elements, in a relatively simple manner installing it around the completely assembled and wired exchange, but installation of neither the walls nor the roof should not require accessibility from the inside.
5. The structural materials, surface supplements and manufacturing technologies should satisfy the applicable domestic standards, fire protection and safety technology specifications.

Insuring structural elements which fully satisfy our requirements caused a very serious problem during design. Finally after circumspect evaluation of numerous possibilities we used the aluminum sandwich elements of the West German "Cargo Van" firm--manufactured originally for the purpose of refrigerated vans--in the construction, for which the Budamobil [enterprise] made a suitable understructure. In the following we will provide a detailed technical description about the large container thus developed.

Construction

The main dimensions of the installed mobile exchange are shown on Figure 3.

Dimensions:

outside width:	2,700 mm	inside width:	2,484 mm
height:	3,980 mm	height:	3,416 mm
length:	11,600 mm	length:	11,335 mm

Supporting distances at installation: 7,500 mm.

Tare weight (without the exchange equipment): 11.7 Mp.

Shipping weight: 18 to 20 Mp.

Internal floor area: 28.156 m².

Volume: 96.181 m³.

Understructure

Welded-construction steel frame structure. Its four I-450 longitudinal supports are held together with 17 pieces of cold shaped U 450/110x5 profiles. There is a U 100/50x5 profile and an angle iron profile located on the full length of each of the two outside longitudinal supports. These provide the connections for the sidewalls. The frame is enclosed on top by an 8 mm steel plate and by a 4 mm steel plate on the bottom. For better thermal insulation the cavities of the frame are filled with polyurethane foam through holes drilled in the cover plates. After "Urekkor" treatment the upper floor plate is covered with 4 mm thick Urex artificial resin.

The following structural elements were incorporated for lifting and moving the container:

--2 jack braces on each of the longitudinal sides for lifting with manual jacks,

--2 ea. Ø 133x11 steel pipes for lifting by crane,

--5 lugs each on the long sides and 2 each on the short sides for towing over short distances.

Nominal floor loading: min. 800 kp/m².

Permissible floor sag:

measured at the intersection point of the diagonals,
with 6 Mp of uniform loading,
when lifted by one corner: max 5 mm.

Permissible floor unevenness: max 10 mm.

The external surfaces of the understructure receive "Katepox" coating after a wash-primer treatment.

Superstructure

The walls and roof are made of sandwich elements supplied by the Cargo Van firm. The value of the "K" factor characteristic of the 100 mm thick panel's thermal insulation is: $0.25 \text{ kcal/m}^2\text{h}^\circ\text{C}$. The outside cover is aluminum sheet with 1 mm trapezoidal ribbing, the inside cover is 2 mm polyester sheeting. The outside cover is protected from the effects of weather by a very hard, resib-based heat cured lacquer of aluminum color. Built-in steel ribs for rigidity insure the firmness of the panels. The insulating material which fills the spaces is polyurethane foam. The roof and the two long sides are 100 mm thick, the two end walls are 132 mm thick.

The 990x2,000 mm access door is in the middle of one of the end walls. This has double insulation and can be secured with a deadbolt locking mechanism. Its construction makes it possible to lock it securely enough for the customs. There is also an internal door located behind the outside door. This is of light structure, the outside is covered by aluminum sheet, the inside by "modekor" sheet and can be locked with a push-lock [?]. There is a 600x650 mm window on its upper part. Both doors open towards the outside. (Figure 4.)

The "through the wall" airconditioning equipment is built into the other end wall. Its significant weight (108 kg) is supported by a steel frame built into the wall panel and by external supports. The side walls are fastened to the understructure by Avdelok rivets. The individual panels are fastened to each other by pressed aluminum profile connectors. Prior to fitting them together the surfaces are covered with uncured rubber gasketing material. After assembly the seals are unbreakable, the house is airtight (Figure 5).

In the prototype the rows of support stands are fastened to the 8 mm thick steel plate floor of the container with bolts and nuts. Later we will convert to more modern technology, by using Hilti nails which can be shot into steel and using screw-nails, in the interest of faster production. After assembly the weight of the upper frame fasteners will be transferred to the U-rails which run the length of the sidewalls. With the aid of the 40/35x4 mm U-shape spacers the steel built into the sandwich wall is connected to an insert strip. The reinforced wall structure provides 100 kp per running meter load capacity for the U-rails. The mobile house fulfills in this respect also the installation technology requirements of the traditional exchanges.

A special hoist and manipulating equipment has been built for installing the sidewalls and roof, and it successfully passed the test at the building of the first container houses.

The rain protection roof built over the entrance door and the access steps are part of the external furbishings. This latter affords comfortable and safe access to the container house which stands on 600 mm high concrete footings (Figure 6).

The ribbed steel steps are fastened to the angle iron profile support frame by electric arc welding. A 1,000x1,500 mm platform is located at entry level, also covered with ribbed steel plate. There is a hand rail made of steel pipes, on the left side of the steps and of the platform.

The step structure is anchored to the mobile housing at the installation site.

Climate Control

Climate control for telephone exchanges is not fully identical with air conditioning of rooms intended for general human habitation (for example hotel rooms, theater halls, department stores, etc.). The exchanges require better dust protection but it would be too costly to provide climate control for such business facilities according to the general air conditioning practice. In the case of unmanned exchanges this would mean a completely unnecessary extra investment.

According to the L. M. Ericsson recommendation (1) we took the following main viewpoints into consideration in conditioning the mobile telephone exchange:

- it should be a solution which is economical to maintain, with inexpensive equipment,

- dust particles larger than 10μ should be filtered out of the exchange's air space,

- temperature in the enclosed space (regardless of the environment's climate conditions) should be between 10°C and 25°C , and the air's relative humidity should be between 40 and 65 percent.

The foregoing are the most important climate conditions for long life and troublefree operation of the type AR telephone exchange.

Experience shows that most of the contact problems in exchanges are caused by dust particles in the 10μ to 200μ size range. Dust pollution gets in partly with the air from the outside, and partly it is generated right in the exchange room. In case less erosion-resistant materials are used, microscopic particles of surface unevenness detach themselves with time from the surfaces and represent a constant source of dust (3).

After the cable inlet opening is insulated, the mobile exchange's housing is practically a hermetically sealed container. Seals on the double entrance door provide safe protection against dust pollution from the outside. The climate control equipment fits into the wall opening with carefully installed

seals. The equipment passes air drawn in from the outside through a special filter into the inside space. The filter's material is impregnated with a bactericide for better filtering of the bacterial particles.

Beyond this, in a very dusty environment the opening where outside air gets drawn in can also be completely sealed. In this mode of operation the equipment only recirculates and filters the inside air. The latter is important because this way the dust generated in the exchange space gets filtered out. The quality of the exchange's floor and walls is important from the dust protection viewpoint.

The mobile exchange's internal wall covering is smooth-surface 2 mm polyester sheet, and its floor covering is wear-resistant cast plastic (Urex). These materials are easy to keep clean and need no other maintenance than damp wiping.

Regulating the air's moisture content serves, among other things, also to prevent or decrease the dust problem. The dust problem appears in the case of air moisture content below about 40 percent. Under domestic conditions this can occur mainly during the winter heating season. At such times care must be taken to increase the moisture content. Only distilled or salt-free water must be used to increase moisture in the air. Common tap water contains too much dust and mineral salts which in humidification increases the inside air's dust content and the corrosion of metals, accelerates the chemical reaction on the contacts. To prevent all these problems, we regulate the inside temperature in the winter season near the low limit value (10°C), thus the relative moisture content of ideally about 50 percent can be maintained even without special humidification. This is the most economical solution in the case of unmanned exchanges.

According to the calculations the exchange's heat dissipating performance is about 3 kW in busy hours. This amount of heat is generated by about 25 to 30 percent of the equipment and 20 percent of the contained volume transfers it into the air. If the exchange is operating, then with the excellent thermal insulation its own heat production provides the necessary operating temperature in the critical winter season under normal and dry tropical climates. In the summer season the operating conditions are also insured for outside temperatures up to 45°C .

In case of power failure the exchange's batteries are suitable for providing 5 hours of emergency operation. During this time of course the air conditioning is off, since the climate control equipment operates directly from the outside network (220V/50Hz). According to calculations made for dry, tropical climate, under such circumstances the inside space's temperature will rise by 1.48°C per hour. Assuming an inside temperature of 20 to 25°C in the instant the equipment stops, this means that the exchange's temperature will rise over the permissible extreme value of 35°C only after about 6 hours. Thus the mobile exchange with its present climate control can be recommended for dry tropical climate also with 6 hours of emergency operation capability.

After the first exchanges will be placed into operation, the opportunity will open up before this year is over to check the calculations in practice.

Main data of the built-in air conditioning equipment are:

Type: YL 17 C 50

Manufacturer: Pichmuller Apparatebau - Austria.

Operating mode: thermostat--controlled automatic. In the energy-saving position it will switch on and off both the circulating fan and the cooling compressor in order to maintain the desired temperature. The cooling cycle is reversible, by switching it over it functions as a heating pump.

Cooling capacity: 4,160 kcal per hour.

Heating capacity: 3,700 kcal per hour.

Air moving capacity: 920 m³ per hour.

Moisture removal capacity: 1.54 liters per hour.

Transportation and Installation

In the ready-to-install state the weight of existing variations of the type Mobil 1,000 telephone exchange is about 20 Mp. Such a high-weight load containing sensitive equipment can be transported from the BHG's plant site to the site of each installation only with special transportation procedures. Exchanges manufactured thus far have been transported in joint ventures by the Hungarocamion [International Automotive Transport Enterprise] and the 22. Volan [busing-trucking enterprise, branch No 22]. Every phase of the move had to be planned carefully, in advance.

Undoubtedly towing the equipment out of the assembly building represented the most severe test for it. Two 16 ton truck mounted cranes lifted the container onto the transport trailer's platform. Lifting pipes inserted into the pipes of the understructure and the sway beam at the top served as auxiliary equipment for the crane lift.

We specified the following items to protect the equipment's integrity--considering that the fill strips and the battery cells were also transported together with the exchange:

--during transportation the exchange may be tilted by a maximum of 5 degrees lengthwise and by a maximum of 15 degrees sideways, and it can be dropped from a maximum height of 5 cm,

--on good quality road the transport vehicle's maximum speed may be 20 km/h,

--poor quality roads must be avoided or lower speed used in accordance with the road conditions,

--the shipment must not be subjected to stronger vibration and shock-type forces.

By carefully observing the specifications the transportation caused no damage to either the container housing or to the internal equipment.

When the mobile exchange's installation site is planned the most important viewpoint is the area required for loading and unloading, as well as the soil's load bearing capacity. The former must be evaluated for each case, and the minimum value of 1 kg per cm² governs the latter. The installation sites designated thus far by the Hungarian Postal Service met the requirements.

Three variations of implementation plans have been prepared for installing the mobile exchanges. Either with monolithic foundation built on the site, or with prefabricated one- or two-part strip-bases. Regardless of the manufacturing technologies applied, all plans contain 2 concrete elements, each sized for 15 Mp loading, and located 7,500 mm from each other. The container housing is placed on the horizontal leveled bearing surfaces of these. Support is insured on each element by 4 neoprene plates, each 20x20x20 cm in size. Elevation of the footing is 600 mm above ground level.

The present type variations are suitable for receiving ground cables. All telecommunication, high voltage and ground cables enter through the 300x300 mm floor opening of the understructure. The high voltage cables are run in a separate protective plastic conduit equipped with identification marks. After installation the section of the cables underneath the mobile housing must be surrounded by a wall for the purpose of protecting them from the weather. Sealing the inlet openings is done by cover plates at both ends of the shaft, the cuts in which fit around the cable bundles. The space between the closing elements is carefully stuffed with glass wool, insulating foam, etc. Thus neither moisture nor dust nor smaller rodents cannot get into the inside of the container.

The mobile housings with their aesthetic looks fit well into the modern city's picture. To keep out unauthorized people the installation site can be surrounded with a fence.

Summary

Development work on the first domestic mobile exchange began in May 1977 and "Series" was completed by the end of 1978 with the construction of one Nagyvaros and one Videk 1. The large containers were moved to their sites during January and February 1979. One remained in Budapest and will begin operation this year at the Kobanya-Ujhegy housing development. Two were shipped to Ozd. The practical experience gained in transportation and on-site location were favorable, the exchanges arrived at their destinations unharmed.

Development of telephone communication above the plan projected an expansion of 45,000 lines in the country by the end of 1980. Of these about 20,000 will be connected with the use of mobile exchanges. By the end of the 5-year plan period the BHG will manufacture a total of 20 mobile exchanges, of these 13 will be of the Nagyvaros and 7 of the Videk variety. The numerical data well illustrate the mobile program's significance.

With the Mobil 1,000 construction a very promising product area was introduced in this country. The main directions of further development are already developing. To make transportation over longer distances easier we want to develop a type variation which conforms to the internationally standardized container sizes. We are researching new structural materials and technologies in order to increase operating and fire safety and decrease production costs.

This introduction would not be complete if we did not mention that development of the mobile telephone exchange represents construction and technology tasks which in many respects differ from the BHG's traditional production profile and very many people--often with commendable activity--take part in these tasks. The effective and fruitful cooperation which developed during the jobs between the BHG and the collective of the Budamobil Vehicle Cooperative which produced the container housing deserves particular mentioning.

The new product is the result of the joint work of all who cooperated.

Bibliography

- (1) L. M. Ericsson: When Planning Telephone Buildings. 1971.
- (2) L. M. Ericsson: Mobil Automatic Exchanges. Technical Proposal.
- (3) L. Molnar: Telefonkozpontok porvedelme. Dust protection for telephone exchanges. BHG ORION TERTA MUSZAKI KOZLEMENYEK 1976 No 1.

[Figure 1. Functional block diagram of the Mobil 1,000 ARF 102 Nagyvaros type.]

[Figure 2. Standardized layout of the mobile exchanges.]

[Figure 3. Main dimensions of the installed mobile exchange.]

[Figure 4. Connection of the front wall and roof.]

[Figure 5. Connection of the side wall and roof.]

[Figure 6. Connection of the understructure and superstructure.]

[Figure 7. Detail of the mobile exchange's switching space.]

[Figure 8. Attaching the SM and the MDF to the floor plate.]

[Figure 9. Attaching the tops of the frame rows.]

[Figure 10. Two truck-mounted cranes lift the mobile exchange onto the transport trailer.]

[Figure 11. The mobile exchange located at the Kobanya-Ujhegy housing development.]

8584

CSO: 5500

PUBLIC INFORMATION PROGRAM ON COMMUNICATIONS BROADCAST

Havana JUVENTUD REBELDE in Spanish 29 Nov 79 p 2

[Article by Susana Lee]

[Text] Every question directed to Pedro Guelmes Gonzales, minister of communications, on last night's broadcast of the Informacion Publica [IP] [Public Information] program received a direct, explanatory and self-critical answer.

The people's various concerns regarding telephone service, the critical condition of the postal and telegraph services and the quality of production in the electronic industry were among the subjects discussed, taken from more than 1,000 problems sent to the Cuban Institute of Radio and Television [ICRT] in letters, telegrams, telephone calls and a survey.

"We have difficulty repairing private and public phones," began the answer to the first question about the unsatisfactory operation of the equipment.

He explained that the ministry has a set a norm that no more than 2,700 telephones should be out of service on any one day and that they are not fulfilling it since in reality 4,000 to 4,500 are out of service; the most affected areas are the City of Havana, Santiago de Cuba, Camaguey, Guantanamo and other important cities in the country. What bothers people the most, he added, is the lack of a record of the days the telephones remain out of service, in chronological order, and they are as likely to be repaired in a day or two as they are to remain out of service for over 2 months.

He summarized the existing situation as follows: Failure to maintain a check list arranged in the order in which the interruption of service took place, the fact that the quality of the repairs is not always the best; difficulties with transport, for it is scarce and old (in the City of Havana there is less than 50 percent of that needed to take care of the 216,000 installed instruments); the fact that the main telephone exchanges of the capital are, on an average, 50 years old (excessively worn equipment which has not always had the best maintenance); a net of telephone distribution cables an average of 40 years old, (when a cable is damaged several telephones are affected at a time, and this in turn further delays the repair).

Regarding the measures which are being taken, he emphasized a more rational use of transportation and a modest increase in the next few months; the linkage of salaries to work norms on the basis of quality; and maintaining a closer check on the sequence of interruptions of service in order to program the repairs more efficiently--all of which should significantly, though not totally, improve the situation.

Regarding pay telephones, he explained that a great deal is lacking for controlling and systemitizing their maintenance and repair, but steps have already been taken for improvement, such as the separation of the activities of collection and repair, whereby the personnel servicing them is doubled, especially in the capital where 3,000 of the 4,800 pay telephones in the country are to be found.

The minister explained, however, that it is not always the case that the pay telephones do not function because they are full but that antisocial elements place slugs in the telephones which cause breakdowns, although he admitted that there are inefficiencies in the collection of the coins.

Regarding the fact that telephones are not installed in sections such as Alamar and San Agustín and so forth, he said that it is because each public telephone costs \$400 and the supply is available only on the capitalist market, and there are no funds currently available for this. He announced that from 1981 on there will be something of an improvement in this regard.

When he answered the question as to why the bill is for complete service even though the telephone has been out of service for several days, he pointed out that this is an important deficiency in the system of billing and that it constitutes an illegality which is in the process of being corrected. He explained in this regard that the first 3 days that service is interrupted there is no reduction but that from that time on there should be an automatic reduction.

As for the charges for long-distance calls to customers who have not placed such calls, he stated that although they are not exempt from organizational and technical problems in the billing procedure, a high percentage of them are due to unscrupulous persons who give other people's numbers for charging their calls. He said that in some places such as Santiago de las Vegas, Guanabo, Santa Fe and so forth, near the capital, to place calls through an operator, as has been suggested, would mean reducing to less than a half the 6 million calls per year which are being handled.

The solution in some of these cases (Santiago de las Vegas, Santa Fe and Managua) will be achieved in the first quarter of 1980, when automatic dialing will be established, and gradually in the remaining areas. In other more distant places, he explained, this problem is solved through a simple protest by the customer; since there is a ticket which notes the number which has been called, it is possible to detect by the date who placed the call.

Regarding delays in making long-distance calls, he said it is due to two basic factors: the increase in the number of both national and international calls and the need for a greater effort on the part of his service, but he pointed out that this service has been substantially improved through the installation of a number of new channels and through the automation of the service. He explained that one must take into account what country is being called and the capacity for incoming and out going calls as it relates to supply and demand.

In replying to questions about numbers 112, 113 and 114 he explained that the most serious situation is in the City of Havana and that it is true that many times one gets the busy signal as soon as one dial "1": this is because those are numbers with a low entry capacity. To resolve or at least alleviate this situation, he said that in the case of 114, two revolving switchboards have been put into service in the capital (61-2201 and 61-8301) already available for use, and as for 113, the distribution of the new Havana telephone directory, free of charge, (although the following editions must be paid for) will be of help.

In regard to the installation of private telephones, he explained that the situation is serious and without much prospect for the immediate future, because there is no possibility of getting funds for it. Also, the greatest difficulty is concentrated in the City of Havana where only 18,000 new lines are being planned (as against 42,000 requests for phones and an approximate actual need for over 100,000) destined for Alamar, San Miguel del Padron and to replace the old plant of Cubanacan. He also said the situation in the interior of the country will continue to improve since it is possible to obtain offers for smaller exchanges which will handle 70,000 or 80,000 lines by the end of the next five-year plan.

Postal and Telegraph Service: Intolerable Situation

Asked about postal and telegraph problems, he stated that it is an intolerable situation for which there is no excuse and to which negligence, lack of control and lack of responsibility all contribute, independently of the fact that there is a scarcity of material resources.

"Up to now, we have not been efficient, capable of resolving this situation, and there are deplorable cases, involving government correspondence, of delay, damage and loss of telegrams and of theft of parcels and we cannot continue to allow this even a moment longer."

He referred to the specific measures which are being taken to solve these problems without delay, among which are: a 24-hour workday in the centers for classification and distribution of correspondence, mail pick-up from boxes twice daily, an increase in the number of inspectors, creation of a national control post to watch over circulation, the sealing of pouches containing parcel post. He announced for example, that 128 cases of theft, embezzlement, and so forth, have been referred to the courts, some of which have already been punished.

"We are going to convert our ministry into a Postal and Telegraph Ministry without neglecting the rest," he emphasized.

Radio and TV Signals, Electronic Industry

Two other important subjects were brought up in last night's IP program: radio and television signals which do not reach some places yet or reach them weakly; and the quality of the products of the electronic industry.

On the first point, Pedro Guelmes explained that it is true that there are still areas where TV signals do not yet reach but that the 25 percent of the territory which was covered in 1959 has increased to 90 percent at the present time. He announced that right now four transmitters are being installed which will serve the area north of Sancti Spiritus and Ciego de Avila and a considerable portion of the area south of Sierra Maestra and that this plan will be pursued until the whole country is covered.

In regard to radio, the same thing is happening in spite of the fact that the level of radio frequencies has been raised threefold and he reported that out of 40 new transmitters being installed in various places only 18 have not yet been installed.

In reference to the quality of assembled television sets, the chief of communications said that it is true that in the beginning the quality of the Caribe sets was not the best due to storage problems but that several measures have been taken, among them the building of warehouses and the distribution of equipment in all the western provinces (Sancti Spiritus to Pinar del Rio), which have solved the problem.

Regarding the production of dry cell batteries he explained that the main problem is that production is not sufficient to meet the domestic demand because acquisition of raw materials for them has become difficult (almost all come from capitalist areas). He said that this year 45 million units will be produced, which, if it does not supply the entire demand, is at least an amount which provides relief.

As to quality, he said it is the highest, for a high technology is used in which units not up to specifications are automatically removed from the assembly line, but the problem lies in the fact that given our climatic conditions, these batteries should not be stored more than 6 months, after which time they discharge. So that consumers would have an idea of the date of their manufacture, he said that at the bottom of the two larger ones and at the border of the small ones is shown the date of manufacture: a letter corresponding to the month and a number to the year; for example, H9 means August 1979.

Regarding the production of antennas, he explained that in the last few years production has not kept up with the sale of sets, that they will become equal in number this year although there will be a backlog from

other years which will begin to be caught up with starting next year because several thousand more will be manufactured than the number of television sets on sale.

In conclusion, he offered a series of facts related to compliance with the directives of the five-year plan for this field, most significant of which was the fact of the ministry having initiated its biggest investment, the coaxial cable, whose completion is planned for 1986, but he explained it will be completed and put into service in stages. It will be 1,800 km long and will provide the definite solution for the country's problems with respect to automatic dialing, data transmission between calculation centers and telegraph systems. It will have a reserve TV channel and although he said it will not provide more telephones it will facilitate and improve the quality of our communications.

At the end of the program it was announced that Blas Roca, member of the Political Bureau and president of the National Assembly of the People's Government would appear on the next IP program.

9204

CSO: 5500

NICARAGUA

DOMESTIC RADIO STARTS INTERNATIONAL TRANSMISSIONS

PA271805 Managua Domestic Service in Spanish 0330 GMT 27 Feb 80 PA

[Text] On 23 February the Voice of Nicaragua began its trial transmissions on the international band to carry reports on the advances of the Sandinist revolution to its Latin American listeners.

The station director, Carlos Guadamuz, referring to the new programming, said the station had initiated its international transmissions on 11,840 kz, in the 25-meter band, and on 5920 kz, in the 49-meter band. It will be special programming, in which the Voice of Nicaragua will carry to the peoples of the world, especially Latin America, the message, achievements and progress of the revolution.

Initially, Guadamuz explained, the station will start its new transmissions from 1800 to 2200 Nicaragua time, or from 1900 to 2300 Eastern Standard Time. He said mention of the Eastern Standard Time will be made as international reference for our listeners abroad who may wish to use the Eastern Standard Time as reference to identify our national transmission schedule.

The new programming will include news, political, cultural, musical, sports and other topics. In other words, the director said, it will try to cover all those topics that are covered by international transmissions. We want to make an effort, he added, to offer flexible, dynamic program to attract our listeners in the continent. It follows that these programs, Guadamuz explained, will carry an ideologic, political and revolutionary content, as demanded by our revolutionary process.

Referring to the coverage of the transmissions, Guadamuz said for the time being, the station can guarantee that the transmissions on the 49-meter band will cover the American Continent. We believe it is a good start to achieve maximum coverage of the Latin American Continent, which is in fact our brother continent.

Referring to solidarity with other countries, Guadamuz said there would not be solidarity programs expressed for any specific country. However, he added, as an elementary revolutionary principle, we cannot forget to offer the aid and solidarity needed by the revolutionaries of the world who are going through the stage we have, fortunately, already left behind us.

VENEZUELA

BRIEFS

INFORMATION AGREEMENT--The OAS General Secretariat and the Association of State Telecommunications Enterprises of the Andean Pact have signed an information exchange agreement. The agreement was signed by Alejandro Orfila, OAS secretary general, and Jaime Aguilera Blanco, state telecommunications enterprise secretary general. [PA260209 Caracas Radio Continente Network in Spanish 2100 GMT 25 Feb 80 PA]

CSO: 5500

INTER-AFRICAN AFFAIRS

BRIEFS

RHODESIA-S.A. COMPUTER SALES--Rhodesia has entered the computer software (programme systems) export market, which could earn up to \$1 million a year in foreign exchange. Two Rhodesian companies have already sold packaged programmes in South Africa. Another computer bureau is working on a feasibility study to sell software developed in this country for the international market. Together these could bring in as much as \$1 million. Mr John Dawson, president of the Zimbabwe Rhodesia Computer Society, recently attended the national seminar of the South African Computer Services and Bureau Association in Cape Town. He said: "I have brought back with me the secure knowledge that, not only can the computer professionals in this country hold their heads high on past achievements, but there is no reason why computer software should not be developed in Rhodesia for sale elsewhere in the world." [Text] [Salisbury THE HERALD-BUSINESS HERALD in English 28 Feb 80 p 1]

AFRICAN INTELSAT GROUP CONFERENCE--Libreville 29 Feb (AFP)--The eighth conference of the second African group to the Council of Governors of Intelsat opened on Thursday in Libreville in the presence of delegates from Senegal, Mali, the Central African Republic, the Ivory Coast, Upper Volta, Gabon, as well as observers from Togo and Niger. The agenda of this meeting, which is presided over by Dr Herve Moutsinga, Gabonese minister of tourism and land management, includes the revision of internal regulations, regrouping member countries on the same satellite, the possibility of setting up an African regional satellite for telecommunication needs. [Text] [AB291600 Paris AFP in French 1525 GMT 29 Feb 80 AB]

CSO: 5500

KENYA

BRIEFS

RADIO RECEPTION, INFORMATION SERVICES--The Ministry of Information and Broadcasting will soon embark on a 25-million shilling project to install 200-kilowatt medium transmitter boosters for both the national and general services at Voi and Taveta districts. This was said by an assistant minister in the ministry, Mr Alphonso Okuku, when he opened the 600,000-shilling Wundanyi district information office. Mr Okuku said that it was the ministry's commitment to improve information services throughout the country so that Wananchi could be educated and be prevented from becoming victims of foreign propaganda. Mr Okuku said that the Voi project will be constructed between February and July next year. He also said that to achieve the government's objective, the ministry had opened 41 information offices and six subdistrict information offices throughout the republic. [Excerpt] [LD221106 Nairobi Domestic Service in English 1400 GMT 21 Feb 80 LD/EA]

CSO: 5500

NEW POSTS-TELECOMMUNICATIONS FACTORY COMPLETED

Salisbury THE HERALD-BUSINESS HERALD in English 28 Feb 80 p 3

[Text]

Business Reporter
A NEW \$1.1 million factory for the Posts and Telecommunications Corporation at Mason, Salisbury, pictured above, has been completed on schedule. The complex was financed by the PTO Pension Fund as part of its investment programme, and is being leased to the Corporation on a 25-year-lease with provision for extending the period.

The complex has been designed to accommodate 600 workers, which includes administrative offices, a development workshop, canteens, service facilities, workshops, bulk stores and a fully-equipped first aid post.

Part of the industrial section has been mechanically ventilated in order to provide a dust-free environment for telecommunications equipment assembly work.

The construction is of reinforced concrete frame with brick infill. Structural concrete gutters have been used to support the saw tooth roof construction.

The building covers an area of 7 000 m² and is situated on a 4 ha site. Work has started on tree planting and landscaping of the grounds to blend in with the natural granite outcrops.

A unique feature of the complex is the use of the British Standards Association industrial colour coding system, which has been adopted throughout the complex to identify services, such as water pipes, electrical installations and other services.

A spokesman for the architects, Jan van Heerden and Cobban said: "To our knowledge this is the first time the British industrial colour coding system has been incorporated in a new factory complex in this country."

The building which is to be officially opened after the election will also contain the Corporation's workshops. The engineering workshops have been in premises in Epton Street, Salisbury, for 30 years.

BRIEFS

NEW FM TRANSMITTER PLANNED--The ZRBC has been given permission to erect an FM transmitter in Highlands, part of which will be on council land. Three sets of stays will support the mast and the south-western stay will need a concrete anchorage point built within the commonage, off Orange Grove Drive, owned by the Salisbury City Council. The commonage is reserved for open space and recreation purposes, but the council last week agreed to lease a small area to the ZRBC at \$5 a year. The council had been told there were no water, sewerage or telephone services in that area. Although there were two pilot underground electric cables in the vicinity, no problems were envisaged with them and the position of the anchorage was not likely to interfere with the use of the land by the public as it was adjacent to the municipality reservoir and there was no public road access. The actual area involved is 6 m wide and 110 m long. [Text] [Salisbury THE HERALD in English 26 Feb 80 p 3]

CSO: 5500

SENEGAL

ESTABLISHMENT OF MODERN TELECOMMUNICATIONS NET IS URGED

Dakar AFRICA in French Jan 80 pp 72-76

[Excerpts] As part of the program to heighten public awareness and provide information undertaken by the OPT [Postal and Telecommunications Office], we are publishing a report written by the director of telecommunications, Mr Mamadou Samoura, which follows the trips made throughout Senegal by the director general himself, and a series of articles published in the Senegalese press. A second report on the postal service will soon follow this article.

Our purpose and our intentions in publishing this report are quite simply to inform the public in general, and in particular the users of telecommunications. In fact, we want to give telephone users objective information, touching briefly on the problems and obstacles facing the Postal and Telecommunications Office.

When we speak of telecommunications in general, and in the developing countries in particular, one question often recurs like a leit-motif, with the disturbing realization that the telecommunications services have fallen considerably behind other sectors: What is the reason for this situation?

In trying to answer this question, we will try to analyze carefully the progress that has been made, as well as the problems encountered in this sector since independence. We will thus see to what extent the development of the national economy depends on the development of telecommunications. This is of course clearly understood by the officials of our country, whose directives and measures guide and illuminate our course of action.

In the five sections of this article, far from giving only a passive description of the situation of the telecommunications network and its weaknesses, we will point out possible solutions or those under consideration.

Generally speaking, it is essential that financial resources be made available when "the time is ripe." Today we must consolidate the gains made in December 1978, so that we can undertake the construction of a true telecommunications network that will match the economic development of our country.

Progress Made Starting in 1978: Dakar-North Axis Projects

Status of the Existing Network

This rapid survey of the past [not included] gives the reader an idea of what we have done, shows the progress made in the development of our national network, and indicates clearly what still remains to be done. The fundamental characteristic of the network we have described is that it was largely too old and undersized. The equipment had for the most part reached its serviceable age limit. The telephone exchanges were of the conventional electromechanical design which were put in service between 1943 and 1954; they had limited performances and were also affected by manufacturing defects.

Thus, in the Dakar and Thies automatic group, getting a dial tone was becoming a dream. In other regions, outside of the Thies-Dakar-Ziguinchor radio relay system, long distance connections were established by poor quality above-ground lines with a limited routing capacity. The state of wear of the urban cables was made worse by disruptions of all sorts. Maintenance was becoming a difficult and delicate matter, for the repairmen often had to avoid creating other problems that might threaten to paralyze the equipment for a long time.

The North Axis Project

Right after 1971 the first contacts were made between the Postal and Telecommunications Office and the World Bank in order to execute the projects to be included in the fourth economic and social development plan. At the time the financing agreement was being negotiated, the top officials clearly understood that the status of the network and the rapid growth in demand related to the nation's economic expansion made the expansion and modernization of the telecommunications systems both essential and urgent.

While waiting for the execution of the projects being negotiated, several partial expansions were made, which did tend to improve the quality of service, which was growing worse from one day to the next.

We will observe that the delays encountered during execution of the IBRD [International Bank for Reconstruction and Development] "Dakar-North Axis" project caused an awareness on all levels of the economic and social role of telecommunications. "Dakar-North Axis" is by far the most significant telecommunications project ever conducted in Senegal. Its cost of approximately 5 billion of our francs, with 2 billion francs being the part paid by the OPT (buildings and other equipment) as self-financing, attests eloquently to both its dimension and its significance.

The project costs may be broken down as follows. The total amount of the contracts is 4,154,488,000 francs, to which were added further charges of 328,277,000. Buildings in Cape Verde (Medina III, Yoff, Thiaroye: 400,000,000 francs; North Axis buildings: (Kebemer, Podor, Matam, Linguere, Louga, Saint Louis, Richard Toll, Dagana, and the single lines): 550,000,000 francs.

The project includes:

1) The following central exchanges:

Centers	Initial Customer Capacity	Final Customer Capacity
Dakar-Medina III	18,000	20,000
Dakar-Yoff	1,000	10,000
Thiaroye	1,000	5,000
Saint Louis	1,000	600
Louga	400	600
Podor	100	600
Matam	100	600
Richard Toll	200	600
Dagana	100	600
Linguere	100	600
Kebemer	100	600

2) The following radio relay systems: Dakar-Thies: 960 telephone channels; Dakar-Goree: 120 telephone channels; Thies-Richard Toll: 300 telephone channels; Richard Toll-Bakel: 120 telephone channels.

3) The very wide band above-ground lines: up to 60 circuits capacity.

4) The urban networks of Richard Toll, Louga, Dagana, Tivaouane, Podor, Matam, Mbacke, Touba, Linguere, Mecke (50 km of underground cables); of Saint Louis (29 km: relaying and extension); and Dakar (relaying, extension): 115 km of underground transmission cables (junction cables).

After this start of service in all directions on 22 December 1978, the following results were observed:

- a. Better traffic flow with permanent dial tone.
- b. Improvement of urban, long distance, and international communications.
- c. Significant increase in the number of customers.
- d. Change in the dialing system (switch from five to six digits).

Difficulties Encountered in Providing a Better Quality of Service

Limitations of the Dakar-North Axis Project

The discretion that naturally characterizes the work of the communications engineers does conceal some problems that were encountered in providing a better quality of service.

The improvements made by the Dakar-North Axis project and the resulting improved traffic flow are not of a nature to cause the users to fear the inadequacies and problems which have still not been resolved.

To be cohesive, a major telecommunications project will necessarily include, in a harmonious fashion, three components: switching, transmission, and the above and underground system.

Let us explain these three terms and show the correlation existing among them.

1) Switching

The purpose of telephone service is, as the etymology of the word indicates, to enable its users to speak to each other from a distance.

As the customers' lines are not in permanent contact, it is necessary to "switch" them, giving us the terms of "switching" and "switcher."

The purpose of the switcher is to join the customers' lines for each communication that is to be established.

Telephone Central Exchange, Office

This switching function is handled by central exchanges or offices.

Then, any telephone communication essentially involves:

- a. A transmitting device (microphone) which transforms the mechanical energy supplied to its membrane into electrical energy transmitted on the line.
- b. The line or series of lines, interconnected, which transmit this electrical energy.
- c. A device (receiver) which transforms the electrical energy received into mechanical energy (vibrations of the membrane).

This is only an elementary schematic description. The various phases of establishing a communication are actually more complex.

2) Transmission

This is done by wires, cables, radio relay systems, satellites, wave guides, lasers, etc.

The types of information to be transmitted are, in addition to telephone communications, data, television images and sound, videophone communications, etc.

3) Network

The synthesis of these different problems can be found in the concept of a network.

A network is, to use the picturesque language of mathematicians, a "system," that can be represented symbolically by a "graph," which has lines or branched beams (the transmission channels),

nodes, pits, or sites, which are the auto-commutators or switching devices, and finally, ends or terminals (telephone sets, teleprinters, data equipment). We can better understand the equal importance of switching equipment, lines and networks, and transmission equipment in establishing a telecommunications network.

Thus it is easy to realize that the Dakar-North Axis project could not by itself resolve on a national level all of the problems found in these three areas.

Its limited, fragmentary aspect has never escaped the attention of the OPT, either at the time of its design or at the time of execution.

What are the current problems we now face?

The present problems are:

- a. The large number of equipment failures.
- b. The large number of requests for connections.
- c. The slowness of connections and in restoring phone service that has been interrupted.
- d. Budget restrictions and the inadequacy of management personnel.

Importance of Dakar's Cable Network

Dakar's system has a large number of customers since it serves the customers in Dakar, Yoff, Thiaroye, and Point E, a total of 11,477 telephone customers, and the 502 telex customers in service (approximately 70 percent of all the customers in Senegal).

All the telephone customers are connected to the Dakar-Medina automatic exchange, which has a capacity of 20,000 customers, after enlargement. This modern exchange opened in December 1978. The telephone customers are connected either directly to the exchange, or through "concentrators" for the customers in Yoff, Thiaroye, and Point E. The OPT is planning to replace these concentrators with independent automatic exchanges. The Thiaroye exchange is scheduled to open in 1980, and the Yoff exchange later.

Consequently, the present problems with the telephone service in Dakar do not stem from the central offices, which are modern and have an adequate capacity. These problems come from part of the customer cable network.

Physical Condition of the Network

A network of customer cables forms a real and immense "spider's web" through which telephone and telex communications are routed to the central offices.

Three parts can be distinguished in the network:

1. The network of transmission cables. This are multitubular pipes placed under the sidewalks or under roads, in which heavy cables are laid (capacity of 224 pairs, 448 pairs, 900 pairs, or more)¹. These cables are connected to the automatic exchange and the SR [Sub-distribution Panels]. Dakar's system has 52 SR.

In the Dakar-North Axis project which was put in service in December 1978, the OPT entirely renovated the transmission cable network. The investment required was 900 million CFA francs. The final capacity of this system was designed to last for about 30 years. However, in order to spread the costs over a period of time, the distribution cable network was scaled to meet future needs for approximately 3 years (the first expansion period).

2. The distribution cable network. This consists of cables with a capacity of 56, 28, or 14 pairs placed between the SR and the PC [Concentration Points]². This network is underground, and occasionally above-ground.

3. The customer connection network. This includes the lines of the customers starting from the Concentration Point and going to the telephone receiver (or to the teletype machine in the telex system), and includes the receiver.

4. Causes of Poor Operation of the Network

For a telephone communication to be of good quality, the exchange, transmission equipment, transmission and distribution

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1. One telephone pair is needed to serve one customer.
 2. A PC consists of a box placed outside or on a telephone pole from which the customer's phone line will be run.

cables, and customer connections must all be of good quality, and there must be a sufficient number of them.

We have already seen that the problems did not stem from the exchanges, or from the transmission cable system. Rather, it is in the distribution systems and customer connections that problems still exist in Dakar.

Overall, we can say that the distribution cable network has a 70 percent saturation rate.³ This is very high and because of this rate, the OPT can not meet the demand for telephone service in certain areas. For that reason we have found a backlog of unfilled orders⁴, with a total of 4072 unfilled orders as of 12 October 1979 in Dakar.

In addition, the distribution and customer connection networks are old (about 20 years old on the average). They are not very reliable, for they have not been maintained or replaced as needed. Thus, there are in Dakar some real sore spots where the customers are periodically without service. Just for the telephone service alone, the number of customers without service for the period between 1 January 1979 and 12 October 1979 came to 17,042. On the date of 12 October 1979, the number of telephone customers without service was 1,290, and the number of telex customers without service was 95. This shows the major effort that the OPT must make in order to cope with this situation.

Remedies

Faced with this troublesome and unpleasant situation, the OPT has adopted the following strategy:

- a. Priority is given to restoring telephone and telex service, and to transfers (customers changing residence).
- b. Connections of officials and diplomatic representatives.
- c. Unfortunately, the administrative delays are so severe that it is hard to get equipment. For example, the 5/1 cable (used for connections) ordered in July 1978 had

3. This rate is obtained by dividing the number of pairs occupied by the total number of pairs.

4. An unfilled order is a request for service that can not be met immediately.

not yet been delivered on 19 October 1979.

- d. At the present time, the OPT is working to renovate and redimension the distribution and customer connection systems. The distribution cable system is now being replaced. Work is in progress in the following six sub-distribution areas: Liberte 6, AJ, AK, AE, AFbis. The civil engineering has been completed and the cable work is 20 percent done. Civil engineering is about to begin for the following seven SR areas: V, A, AB, Fann-Hock, S, D, and E.

The investment already made by the OPT in the distribution system comes to 275 million CFA francs. And yet, to eliminate the intermittent failures and to meet the demand for telephone service, both the distribution and the customer connections systems should be entirely redimensioned and renovated. The total investment required to do this, including civil engineering, supplying cables and their connections, is estimated at approximately 6 billion CFA francs. However, this investment would be economically worthwhile, for the amount now being lost that would be earned by the state (through the OPT and Telesenegal) can be estimated at 2 billion CFA francs a year.

Mutual Understanding between the OPT and the Users

Faced with such difficulties, it is important that there be mutual understanding between the users of telecommunications and the OPT in solving this problem. Attempted bribery or the use of unofficial forms for claims must stop. The users must be made aware that the telephone, while pleasant to use, has to be paid for. Especially as, since 22 December 1978, they have been able to get a dial tone!

Prospects for the Future

Updating of the National Telecommunications Guidelines

For the harmonious development of telecommunications in our country, the OPT has developed, with the support of the ITU [International Telecommunications Union], the National Telecommunications Guidelines, covering the period between 1975 and the year 2000. This document, using an evaluation of telephone demand based on precise economic and social data, indicates the investment that should be made. The national guidelines were recently supplemented by a telecommunications

financial planning report which presents an overall view of both present and future investments, as well as the resulting financing needs.

Then, in 1976/1977 the OPT set up a telecommunications planning unit, which has already drawn up the specifications for the main projects described in the national guidelines. Some of these projects are included in the fifth (readjusted) Economic and Social Development Plan; listed in order of priority, these are:

- a. The renovation and expansion of Dakar's distribution cable system.
- b. The renovation of the Coastal Maritime Radio Station.
- c. The Cap Skirring-Oussouye-Ziguinchor radio relay project.
- d. The project to modernize telecommunications in the regions of Diourbel, Casamance, and eastern Senegal.
- e. The search for financing for projects in eastern Senegal and Sine-Saloum.
- f. The project for the future automatic telephone exchange of Dakar-Ponty, etc.

The OPT, in liaison with the ministry of cooperation and planning, is now actively seeking financing for some of these projects.

Financing of Telecommunications Operations

Several possibilities for financing are open to the OPT. First of all, there is the possibility of financing some renovation operations from its own budget (operations and investment). This is the case for all expansions of equipment or systems already in place, or for the purchase of telephone sets, teletype equipment, cable replacements, etc.

For major projects, the responsible ministry works with the ministry of planning which is responsible for setting up, along with the OPT, the appropriate financing. These projects are generally financed by foreign credits, most often from international financing organizations. As an example, the following organizations are already involved in financing

OPT projects: the FAC [Aid and Cooperation Fund], the CCCE [Central Fund for Economic Cooperation], the IBRD [International Bank for Reconstruction and Development], the WADB [West African Development Bank], and the ACDI [expansion unknown]. These funds are generally supplemented by bank credits called supplier credits.

We should add that for each of the projects financed in this way, there is a counterpart self-financed by the OPT (often 20 to 25 percent of the total cost of the project). This part most often covers the cost of telecommunications buildings or civil engineering work.

For the fifth Economic and Social Development Plan, the priority financing covers the expansion and renovation of the Dakar cable system, the Cap Skirring-Oussouye-Ziguinchor radio relay system, the project to modernize the Coastal Maritime Radio Station of Dakar, and the project to modernize the telecommunications system of the Diourbel region. Their financing is now being negotiated.

Telecommunications and Development

The anniversary of the founding of the ITU, 17 May, is now World Telecommunications Day. On 17 May 1977 the commemorative theme selected by the ITU was "Telecommunications and Development." And it is true that the role of telecommunications is essential in establishing a renewed international cooperation and for a nation's harmonious development.

In this regard, the paradox of these countries lies in their possession of important and varied commodities (coffee, sugar, tea, cotton, cocoa, crude petroleum, phosphates, a variety of ores, etc.) which they have some difficulty in exploiting. Why? A leading handicap blocking their promotion of these products is the inadequacy of communications, particularly telecommunications.

Today in any developed or developing country, the businessman, doctor, and banker use telecommunications on a 24 hour a day basis.

The rapid execution of transactions is based on a telecommunications system which acts as a preliminary to the feasibility of industrial, port, agricultural infrastructures, etc.

In the social area, a modern telecommunications system enables rapid intervention to cope with all sorts of natural disasters, and to aid people in need of emergency assistance.

In an unobtrusive way, telecommunications are present everywhere and are involved in a great many aspects of our everyday life. They form an effective part of all the modern services that determine development and are manifested in very diversified aspects in broadcasting satellites, tele-distribution, dissemination of information, television--viewed as a source of amusement, information, and education.

Furthermore, recent studies have shown the close relationship between the expansion of telecommunications and economic growth, in particular industrial growth. We will give a few indications on this subject.

- a. The more highly developed a telecommunications system is (telephone, telex), the more sectors of activity the country involved has.
- b. Growth in the telecommunications system (telephone and telex) means development of trade, tourism, basic industries, and capital goods.
- c. The impact of telecommunications on the economic construction of a country has become quite evident, and we find with surprise that the areas in which telecommunications are involved are increasing everyday.
- d. This concern of linking telecommunications and development has been at the heart of the actions conducted on all fronts by all persons involved with telecommunications, which have been guided by the various heads of the OPT from the time of independence to the present.
- e. This is a good opportunity to offer them some well merited praise, for through all their efforts made for the good of the OPT, their creation, telecommunications, has gradually grown.

And yet, our telecommunications network, despite some progress made since the time of the former AOF [French West Africa], particularly in the peak years of 1968 and 1978, has lagged behind. What is the reason for this?

Senegal, because of its favored situation in the former AOF territories, got off to a relatively good start in telecommunications with a fairly well developed infrastructure.

But unfortunately, large-scale operations to replace and expand equipment only began very recently, and so telecommunications within the OPT lost ground. The few projects done in 1968 and the Dakar-North Axis or IBRD projects in 1978, which we discussed earlier, were at best partial solutions. The reasons for this are:

- a. The extent of new needs (Dakar is both an economic and a political capital).
- b. The accumulated delay.
- c. The age of the equipment, which offers a constant challenge.
- d. The slowness in carrying out operations and investment projects.

A number of countries have had to face this sort of situation. The difference which characterizes our country is that we now know the problems we have, and the solutions may come in time. As a matter of comparison, less than 10 years ago, France, at least proportionally, had to face such a situation.

In France telecommunications had also lagged considerably behind economic and social activities. Starting with the 6th Plan telecommunications began to be given priority and for the past 5 years, the French PTT budget has been the largest of all the non-military ministries.

In 1978, the figure of 12 million connections was exceeded. That is why today, France, after setting up the necessary structures and providing the appropriate financial resources, has made its General Telecommunications Directorate a prosperous, modern, efficient, and expanding agency.

All the aspects related to telecommunications mentioned in this article have shown that the establishment of a modern telecommunications system is a priority. Greater speed in making new connections, better customer relations, improved traffic flow, efficient and rapid repair of equipment failures, etc. all remain a matter of concern to us everyday.

7679

CSO: 5000

STATE TO SET UP SUB-RADIO STATIONS

Lusaka TIMES OF ZAMBIA in English 12 Feb 80 p 5

[Text]

THE Government is to establish sub-radio stations in rural areas in order to improve radio reception and counteract propaganda by other foreign broadcasting stations.

This was revealed yesterday by Minister of State for Information and Broadcasting Services, Mr John Banda, during his familiarisation tour of the Zambia Broadcasting Services.

Mr Banda, who led a team of seven MPs on the tour, said work had started on the station in Mongu because of the area's proximity to South Africa, and Chipata which was nearer to Malawi.

He said, "The problem of poor reception is still with us, but plans are there to establish regional stations so that people in rural areas do not depend on Lusaka."

On equipment, the minister admitted that most of the equipment was outdated and needed to be replaced, but he pointed out that it would be unwise to do so at a time when the station was about to move to the new mass media complex being constructed.

Commenting on the progress of the complex currently under construction,

Mr Banda said work had dragged on for a long time and the cost had more than trebled.

He could not say when the complex would be completed, but added: "I hope the people entrusted with the responsibility of building the complex appreciate that the work is urgent."

The minister disclosed that the ministry was at the moment negotiating with a West German company with a view to sending more people abroad for training so that there could be enough personnel to man the new complex.

He also added that plans to set up a training institute were in an advanced stage. The site for the institute was Kamwala Secondary School, and renovations to the buildings were under way.

"We are very much aware of the need for personnel as well as other requirements," he said.

On the external service, Mr Banda pointed out that

this was an important wing of the station which must be improved to enable it to reach distant places abroad.

And addressing ZBS staff in the studio, the minister warned that the ministry would be ruthless with films about propaganda of other countries.

He said the media must be used for development and not as a tool of criticising the Government.

He warned the staff, who included director-general, Mr Alport Phiri and chief engineer Mr Churchill Mutale, against interviewing "reactionaries."

"The aim is to find out how a person's ideas could influence development. We must not use the media to criticise the Government," he said.

Mr Banda also told them to work hard and improve their services in order to minimise criticism levelled against them by the public.

"News must be up to date, properly edited and meaningful," he said.

adding that they should listen to British Broadcasting Corporation (BBC) and other foreign stations to counteract propaganda.

He disclosed that ZBS had done away with a film called "Holocaust," depicting the suffering of the Jews, saying these were the same people perpetrating rebel raids into Zambia.

Emphasising the importance of radio, the minister said in the last three years, the Government had spent K10.5 million in recurrent and current expenditure on improvements to ZBS.

And director-general, Mr Phiri said the department was facing a critical shortage of transport and housing.

The organisation needs

18 vehicles, but it only had three cars, one of which was given to them after the Commonwealth conference.

Earlier, MR COSMAS MASONGO (Nchanga), MRS BATHSHERA NG'ANDU (Kafue) and MRS ALICE LLOYD (Kabwe), called on the Government to allocate the department more money to enable it function effectively.

The MPs expressed the sentiments after being shown a colour film processing machine worth K30,000 which was lying idle because "the Government has no money to buy colour films." The machine was bought during the Commonwealth conference.

CSO: 5500

BRIEFS

NIKOLAYEVSK-NA-AMURE DEVELOPMENT—Since the last local Soviet elections, 62,000 square meters of housing have been commissioned in Nikolayevsk-na-Amure and Nikolayevskiy Rayon. The first projects of the future mining enterprise are under construction at the Mnogovershinnyy ore mine and its first stage will be commissioned by the end of 1982. A new therapeutic building at the city hospital was commissioned in 1979 in Nikolayevsk and a hospital under construction in Lazarev settlement will be commissioned this year. A polyclinic capable of handling 150 visits a day is under construction in Mago. An automatic telephone exchange for 100 subscribers was installed in Podgornoye settlement and for 50 subscribers in Ovsynnoye Pole settlement. The Orbita television receiving station was reequipped to receive color programs and a television relay station was set up in Nigir settlement and another one will be set up shortly in Ovsyannoye Pole settlement. [OW290803 Khabarovsk Domestic Service in Russian 0930 GMT 13 Feb 80 OW]

CSO: 5500

BUSINESS GROUP CRITICIZES TELECOMMUNICATIONS SERVICE

Reykjavik MORGUNBLADID in Icelandic 30 Jan 80 p 12

[Unattributed article: "The Icelandic Chamber of Commerce: Much Could Be Improved in the Operations of the Post and Telephone Service; Conclusions of a Special Investigation on the Part of the Chamber Announced"]

[Text] A committee established by the Icelandic Chamber of Commerce has investigated the activities of the Post and Telephone Service and has delivered a detailed report including proposals, on which the committee places emphasis and thinks can lead to improvement. The main purpose of the committee was, in the first place, to make suggestions for improved and cheaper service and, in the second place, to study service and costs in comparison to other countries. The committee took counsel with the Consumer Association and also with employees of the Post and Telephone Service in its activities.

Hjalti Geir Kristjansson, chairman of the Chamber of Commerce, said yesterday in a press conference, when the conclusions of the committee were announced, that the executive committee of the Chamber of Commerce decided to create the committee for this purpose at its meeting of 18 June last year. He said that the reasons were that business had a major interest in economical service and rates of the Post and Telephone Service since use of Post and Telephone services was an important part of its operations. As is known, the Post and Telephone Service is operated completely under government control and the government has a monopoly in those activities carried out by the establishment. Hjalti Geir Kristjansson pointed out that it had been attempted, in all proposals, that the improvements serve the interests of consumers and do not burden the operations of the Post and Telephone Service.

Petur J. Eiriksson, who was the chairman of the committee, gave a report on its activities and conclusions. The committee decidedly supported the proposal of the Post and Telephone Service that the sales tax be taken off excess calls. Thereby two things would be accomplished: the sales tax for calls abroad is now four percent. With the arrival of automatic telephones it could happen that the full sales tax, 22 percent, would be levied on them, which the committee thinks as outrageous. That problem would not

exist if there were no sales tax on excess calls. Secondly, phone costs for the various fee ranges would be evened out to a degree.

The committee pointed out particularly that regulation in the present rates that any kind of trade or business enterprise is forced to pay a 30 percent higher deposit than general consumers. This is a remnant from the time of manual switchboards and the committee sees the need to eliminate that regulation.

Supply and variety of telephone apparatus was discussed in particular and it was thought that things were very imperfect in that area. The engineer, Gudmundur Olafsson, was the advisor of the committee and he operates the company Sintakni, which is advisory in this area. He discussed special self-dialing telephones with memories and said that new equipment was important for companies and could increase productivity and output significantly.

The Post and Telephone Service is forced to bear various social services, for example, free phones for old age and disability pensioners, election phones and the like. The committee thinks it not right that such services are supported, in terms of their cost, by public consumers.

There was some discussion of the operations side of the Post and Telephone Service and it was pointed out that in many areas economies might be achieved, such as through sealed bids when purchasing telephone equipment and the like. The committee pointed out in particular that the establishment could provide better service in many areas and singled out difficulties in getting a post box, late delivery of letters and telegrams, the fact that the Post and Telephone Service has not acted properly with respect to address changes, and difficulty in obtaining stamps, which is often encountered.

Many things could improve in Post Office business, in the view of the committee, and it pointed, in this connection, to service fees and noted that this matter was decided without any input from those using the services.

Upon comparison of telex fees it emerged that there is a much higher fixed cost in Iceland than in other Scandinavian countries. The committee noted this large difference and expressed hope that this was correct. Upon comparison of total telephone costs in 58 countries of the world, a comparison published last year by the West German Siemens telecommunications company, it emerged that Iceland was in the 21st position and it is hardly possible to say, in the view of the committee, that the comparison is completely unfavorable to Iceland. The same thing may be said from a comparison of postal and telegram rates. As an explanation of the great difference between Iceland and other countries in telex it was mentioned that other countries have large incomes from telex messages but Iceland, on the other

hand, has only a very short line to the Vestmannaeyjir, which produces very little income of itself.

Hjalsti Geir Kristjansson said, at the conclusion of the meeting, that the Icelandic Chamber of Commerce would study the report of the committee fully and was ready to establish connections between consumers and the Post and Telephone Service. The investigation was not one sided. The matter had also been examined from the standpoint of the Post and Telephone Service and he said in conclusion that he expected good cooperation of these parties that all Icelanders receive as good service in this area as possible.

11,433

CSG: 5500

ICELAND

POST, PHONE SYSTEM CHIEF DISCUSSES INTELSAT ADVANTAGES

Reykjavik MORGUNBLADID in Icelandic 9 Jan 80 p 5

[Unattributed article: "Prospects for Automatic Phone Connections With Germany in June"]

[Text] It is expected that it will be possible to call West Germany directly from Iceland this June when the cable station--to be tested next month--has been made operational. Its equipment is fully tested and the automatic station is ready. Later in the year the ability to call Scandinavia or England directly is foreseen.

Effort is now being made to make possible the use of automatic phones in connection with cable stations. This information has been obtained from Thorvardur Jonsson, chief engineer of the Post and Phone Service. He said that it would not be possible to pinpoint the time of the automatic link with other countries; it is dependant upon changes being made in the Intel-sat earth satellite this summer.

At this time a new and more perfected type of phone apparatus is being used. The new apparatus is, to a certain degree, solid state, but similar in appearance to the conventional phone apparatus. The technical equipment of the new phones may be considered superior, especially for those positioned a long way from exchanges, as is the case in the outskirts of Reykjavik and out in the country. Such phones require less maintenance. A conventional phone costs around 32,000 krona but recently the so-called push-button phones have been available and cost between 60,000-70,000 krona. Thorvardur Jonsson said that they have been purchased to a limited degree but soon better and cheaper push-button phones will be used. It is foreseen that they will cost nearly 50,000 krona. The push-button phones, which have been available in the past, spare users very little time since they require more or less the same time to reach a number as does a dial phone but the new push-button phones will be much more rapid.

Asked about mobile phones, Thorvardur Jonsson said that they would probably not be on the market soon since they are very expensive. For this reason it can scarcely be expected that people will invest in them but Thorvardur Jonsson said that the Post and Phone Service was keeping abreast with technical innovation in this area.

PORTUGAL

NEW ADMINISTRATORS APPOINTED TO STATE-OWNED MEDIA

New Law Made

LD090246 Lisbon Domestic Service in Portuguese 0001 GMT 9 Feb 80 LD

[Excerpts] The media were again in the news yesterday following the release of a note by the Secretariat of State for Social Communication. The note confirmed the closure of the newspaper O SECULO, the establishment of a journalism school, the transfer of the Secretariat of State for Social Communication to the premises of O SECULO as well as the introduction of a new law on radio broadcasting and the dismissal and appointment of new administrators for the state-owned media.

Late yesterday morning the government released another note announcing the following appointments in the media: Dr Jorge Manuel Pereira Tadeu was appointed chairman of DIARIO POPULAR; Dr Vitor Cunha Rego was appointed chairman of Portuguese television; Dr Jao Barreiros Cardoso was appointed chairman of Radio Difusao Portuguesa; Engineer Tito de Morais was to remain chairman of the Portuguese news agency ANOP, but his resignation was announced yesterday evening; Dr Jose da Silva Macedo e Cunha was appointed chairman of the state-owned publishing house Noticias-Capital. All these appointments are still provisional. Their confirmation depends on the opinion of the mass media advisory councils for RTP [Portuguese Radio and Television], RDP [Portuguese Radiol], ANOP and the press.

Socialist Party Comments

LD090248 Lisbon Domestic Service in Portuguese 2330 GMT 8 Feb 80 LD

[Text] The Socialist Party tonight released a note challenging the appointment by the government of new administrators for the state-owned media. The note states in part: The government had promised a change and concerning the media, the meaning of this change is now quite clear: It means the curbing of freedom in news reporting in Portugal.

CSO: 3500

END

SELECTIVE LIST OF JPRS SERIAL REPORTS

WORLDWIDE SERIAL REPORTS

WORLDWIDE REPORT: Environmental Quality
WORLDWIDE REPORT: Epidemiology
WORLDWIDE REPORT: Law of the Sea
WORLDWIDE REPORT: Nuclear Development and Proliferation
WORLDWIDE REPORT: Telecommunications Policy, Research and Development

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